A diversity of new work organization: human-centered, lean, and in-between

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A Diversity of New Work Organization. Human-Centered, Lean, and In-Between**

Lean production, from Toyota, is said to be paradigmatic for future production organization in the auto industry. This article challenges that view. Case studies at auto plants in the U.S., Germany, and Sweden show a wide diversity of developing new work organization. Not only are there differences across countries, there are also substantial and persistent variations across firms and even individual plants. No single model of production is yet emerging from this diversity. Although there are common elements such as team and group work, just-in-time delivery, and "total quality management", the actual shape of new work organization depends on a variety of factors including industrial relations, training systems, and labor market conditions.

"Lean production", von Toyota, wird als neues Paradigma für die Organisation der Arbeit in der Automobilindustrie betrachtet. Der vorliegende Artikel widerspricht dieser These. Ausgehend von Fallstudien in Automobilfirmen in den USA, der Bundesrepublik und Schweden wird die große Variationsbreite von neuen Arbeitsorganisationsformen gut gezeigt. Dabei gibt es sowohl Länderunterschiede als auch Unterschiede zwischen verschiedenen Firmen eines Landes und sogar verschiedene Lösungen in einzelnen Betrieben eines Unternehmens. Wenn es auch einige gemeinsame Elemente gibt, wie beispielsweise Gruppen- oder Teamarbeit, Just-in-time-Zulieferung und "Total Quality Management", so gibt es dennoch keine Entwicklung hin zu einem einzigen Arbeitsorganisationsmodell. Die konkrete Form der Arbeitsorganisation hängt vielmehr von einer Vielzahl von Faktoren ab, unter denen das System der industriellen Beziehungen, der Berufsbildung und die Arbeitsmarktsituation besonders hervorzuheben sind.

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Introduction

In response to changing world markets, intensified competition, new technologies, and worker demands, managers everywhere are required to reorganize work in important and sometimes profound ways. Such innovation, part of larger processes of industrial restructuring and production reorganization, is one of the central features of the modern workplace. But the new processes and impacts of work reorganization can be interpreted in different ways.

In one prominent contemporary view, Japanese firms have reinvented production and all others will have no choice but to follow. For Womack, Jones, and Roos (1990), for example, the Toyota production system is paradigmatic. "Lean production", based on innovations such as just-in-time supply networks and shopfloor production teams, has proven its superiority and will now replace mass production and "change the world". Work will be (or at least should be) reorganized everywhere based on superior Japanese methods; the outcome, in time, should be cross-national convergence along with more interesting, challenging, team-based work as the superior techniques spread.

Another view agrees that managers everywhere, in the auto industry but in other industries as well, are pushing new team systems of work organization on the Toyota model; but they are doing so to speed up and tighten control over their workforces, pushing toward an increasingly nightmarish outcome for shopfloor workers. Thus Parker and Slaughter (1988) also see potential convergence for new work organization, in this view around a more intense version of Taylorism that they call "management by stress". The saving grace in this view is that workers can and will rebel. Parker and Slaughter thus project a picture of converging managerial initiatives to promote oppressive new work organization such as the "team concept", accompanied by increasing shopfloor resistance and conflict.

Our view is that both of these analyses, in spite of the substantial contributions of each, are flawed in their general orientations. The research we have done on the U.S., German, and Swedish auto industries (the paradigmatic industry both for Womack, Jones, and Roos and for Parker and Slaughter) shows that not only are there different roads to new work organization, but there are distinctly different outcomes as well. We see not convergence around a single model but considerable diversity; and this diversity is not only nationally based but is apparent in considerable variation of plant-level outcomes within each nation. This diversity, we believe, is not a transitory phenomenon but an enduring one, as new and distinct, contending models of production and work organization take root in contemporary processes of industrial restructuring.

The driving forces for organizational change are similar across and within nations: changing world markets, intensified competition, the rise of successful Japanese production models, the spread of new microelectronic technologies, new worker demands for more interesting and varied work. But outcomes vary in different political, economic and social contexts. The mistake that analysts such as Krafcik (1988) and Womack, Jones, and Roos (1990) make is to downplay the importance of these contexts. We argue, by contrast, that the political, economic and social contexts are crucial in determining outcomes, both for the shape of new work organization and the accompanying prospects of "new industrial relations" (see also Jürgens, Malsch, and Dohse 1989; Dankbaar 1990). We find no persuasive empirical grounds for the view that contemporary globalization means the dominance of and convergence around one model of production organization (see also BRIE 1991). On the contrary, we find significant cross-national variation, with distinct national patterns that are strongly influenced by the institutions of industrial relations, the role of organized labor, and national labor

market characteristics. And not only do we find national patterns, we find as well considerable diversity within the national range of choice for particular plants, dependent on the local institutions, preferences, and political interactions of employers, unions, and governments.

It is not true, of course, that all things are possible. Japanese lean producers have reached levels of productivity, product quality and flexibility of product offering that are forcing others to respond. Western managers, for good reason, are adopting many new Japanese techniques. Japanese firms, especially in the auto industry, have made a major contribution by developing and showing the possibilities of highly efficient new work organization. Womack, Jones, and Roos have provided an important service in analyzing and calling attention to the elements of one prominent Japanese firm's success.

But convergence, we argue, will be limited by national and local institutions and circumstances; patterns of diversity in production and work organization will persist, even as successful Western producers reach Japanese levels of efficiency.

Sources of Diversity

Why do we find such cross-national, cross-firm, and intranational differences in contemporary work reorganization? The answer is because politics, industrial relations institutions, union and firm strategies, and labor market conditions all matter. This is a perspective that has informed much of the best recent work on industrial relations and new work organization (such as Sabel 1982; Katz, and Sabel 1985; Kochan, Katz, and McKersie 1986; Jürgens, Malsch, and Dohse 1989; Pontusson 1990; Locke 1990; Thelen 1991). It is a perspective that is worth reemphasizing as we enter a post-Fordist era in which the natural inclination for researchers and analysts may be to seek to define a sweeping new paradigm of "best practice".

If one accepts the conclusion that contrasting political, economic, and social contexts lead to different shopfloor forms of organization, the next and more difficult step is to specify the particular factors leading to particular outcomes. In other words, how do we explain the differences? We need testable propositions that specify interrelationships and that can be applied broadly, across nations and industries. A full set of hypotheses is beyond the scope of this article; but the following are examples of propositions, suitable for wider testing, that are supported by the evidence presented here.

1. Where unions are integrated in management decision-making processes through legal or bargained institutions of codetermination, unions in the current period of work reorganization develop proactive strategies to influence the shape of new organization. The result is negotiated solutions: new shopfloor organization takes shape in a bargaining process between labor and management. One can expect in these cases that while some aspects of lean production will be adopted for efficiency purposes, other human-centered concerns that are not part of the lean system (such as longer cycle times, more autonomy for work groups, and elected group leaders) will also be incorporated. This pattern can be seen in Sweden and Germany.
2. Where unions have long established arm's-length relations with employers and no formal rights in management decision making, unions face a choice between collaboration and opposition but are unable to play a proactive role in the shape of new work organization (at least until the arm's-length relation is substantially changed). Management will push for implementation of its own team concepts (heavily influenced by Japanese/lean models). The transition to new work organization will be rocky as management encounters a patchwork pattern of acceptance and rejection within the workforce, as the U.S. experience indicates.
3. The specific form and implementation of new work organization is linked not only to industrial relations but to other factors such as national and local labor market conditions. The drive to implement human-centered forms of work organization is stronger in tight labor markets, where competition for labor is based not only on wages but on the quality of jobs. In loose, low-skilled labor markets, new forms of work organization are less necessary to attract labor, leaving room either for lower skilled, traditional work organization or for lean production.
4. There is a link between labor-market incentives for work reorganization and the national (and local) vocational training system. If such a system produces high skills as a "public good", the spread of human-centered work organization based on high skills content becomes more probable. Contemporary Swedish and German experience provides evidence for this claim.

These propositions emphasize both institutional and economic variables (see also Cole 1985, who identifies organized labor and labor market circumstances as key variables in determining the success of "small group activities"). Indeed we argue that both markets and established

institutions are critical in determining the shape of new production and work organization in this period of major transition and restructuring. As evidence both for our general argument and specific hypotheses, we present summaries of our case studies of organizational innovation in the U.S., German and Swedish auto industries.| To provide focus for this presentation, we emphasize the path-breaking arrival, at auto plants of all three of these countries, of team and group forms of shopfloor organization, where the isolated, individual regimentation of traditional mass production once held sway.

Japanese-style Teams and Homegrown Solutions in the U.S.

The early groundwork for the coming of team organization in the U.S. auto industry was laid at GM in the 1970s: in widespread Quality of Working Life experiments and in GM efforts to introduce team organization at non-union plants in the South (Katz 1985, pp. 73-104). Both initiatives represented efforts to resolve shopfloor worker discontent, improve labor-management relations (in an industry notorious for relations of "armed truce"), tap shopfloor workers' ideas and thereby improve workforce morale, productivity and product quality. But the big push came in the 1980s. The GM-Toyota joint venture in Fremont, California, known as NUMMI (New United Motor Manufacturing, Inc.), proved that the introduction of Japanese-style teams was possible in an American setting, even with an established American workforce and union (the United Auto Workers).

The plight of the U.S. auto industry in the wake of the 1978-79 oil shock and 1980-82 recession is well known (Altshuler et al. 1984; Quinn 1989). Market shares of Japanese firms rose rapidly while the sales of U.S. firms dropped, plants closed, and employment in the industry plunged. Japanese firms, it turned out, had developed enormous cost advantages (for cars of similar or superior quality) over U.S. firms, advantages which to a significant degree could be traced to innovations in production organization. It was in this context, as U.S. managers sought to imitate just-in-time, outsourcing and quality circle (among other) strategies, that they were suddenly presented, in 1984-85, with the successful "demonstration plant" NUMMI model.

NUMMI is a Toyota-run plant from which GM has made a major effort to learn.| There are many aspects of NUMMI's success (just as there are for the Toyota production system from which NUMMI is derived), but a key ingredient is the thorough-going organization of the plant workforce into shopfloor production teams. At NUMMI, workers are organized into teams typically composed of four members and a team leader. Although jobs are enriched through the teams for workers where the technology is most advanced (as in the stamping plant), most workers, especially in final assembly, do repetitive, routine, and highly standardized work in short cycles (about one minute). They rotate jobs within the teams, include inspection and some minor repair and machine maintenance within the teams, and meet every two weeks for half an hour to discuss production problems and suggest improvements. Although the system has been referred to as "team Taylorism" (Wood 1986) and "management by stress" (Parker and Slaughter 1988), union election results from 1986 to 1990 favored the cooperation-oriented incumbent leadership. The local UAW, in fact, led by former union militants from the earlier GM plant at the same site, has been well integrated into a new system of consensual labor-management relations; workers received employment security in return for new functional flexibility and the elimination of most job classifications. But NUMMI is no workers' Nirvana: in 1991 elections, opposition candidates won several top local union positions. Even supporters of the (former) opposition, however, who criticize the constant pressure to work harder and faster, claim to prefer NUMMI to the highly adversarial, low morale, work-fragmented GM system in which most NUMMI employees formerly worked. In the year following those elections, the cooperative,

integrated labor-management relationship has persisted. An accurate evaluation of NUMMI should therefore be two-sided: on the positive side, high productivity and product quality, employment security for the workforce, and work that on the whole is probably more satisfying and equally apportioned than before; on the negative side, very limited team autonomy (at least in production), short cycle times composed largely of repetitive tasks, and constant "no buffer" pressure on the workforce.
But NUMMI, although it may be the model to which many managers aspire, is far from the whole story of new work organization in the U.S. auto industry. Big Three auto firm management has been notoriously slow and only occasionally successful at spreading the lessons of NUMMI. Katz, Kochan, and Keefe (1988), for example, found no positive correlation between team organization at U.S. auto plants and good performance (such as productivity). Managers have often avoided the risks of change, even when prime opportunities have presented themselves; and when they have initiated major team organization campaigns, they have often pursued counterproductive implementation strategies that have resulted in failure.
At an assembly plant in Van Nuys, California, GM made a major effort to transfer the lessons of NUMMI.| Management, however, pursued reorganization in a typically old-fashioned, heavy-handed way which polarized the workforce and undermined the possibility of new labor-management trust and successful teamwork. The plant manager negotiated a local "team concept" agreement in 1986 with the cooperative wing of the local union leadership. But the agreement was rejected by the workforce; only after heavy pressure and threats of plant closing did the workers finally ratify on a later vote. Team organization on the NUMMI model was then implemented throughout the plant in 1987 in a polarized atmosphere; and management wasted the opportunity and support it did have by its own failure to live up to promises of a new and more humane management style. The experiment struggled gamely along, supported by many but undermined as well by others within the ranks of both management and workforce, until the announcement was finally made in 1991 that the plant was scheduled for permanent closing.
In 1984, GM opened its Hamtramck flagship plant in Detroit to great fanfare about the revolutionary combination of new work organization (shopfloor teams, new human relations) and advanced assembly technology. Although all workers received some training in the new system and at least enough "organizational development" to raise their hopes, expectations were soon dashed when production pressure mounted in the early months. Managers reverted to their old ways, sacrificing new concepts such as job rotation, pay-for-knowledge, and substantial team participation in the push to produce. By 1989, a union opposition group was strong enough to ride the crest of disillusionment and anger into office. Hard negotiations followed, centered around union demands that management fulfill human-side promises of the new system; by 1990, prospects improved for a team system that included short cycle times and limited team autonomy on the one hand but job rotation, team meetings, and improved worker input and labor-management relations on the other hand.
The variety of outcomes for innovation at GM plants remained wide throughout the 1980s and into the new decade. At plants in Lansing and Lordstown, for example, management and labor initiated wide-ranging "joint" cooperative processes that included grouping workers into teams. Although cycle time remained short and team autonomy limited, these new processes showed promise for shopfloor innovations such as job rotation and worker involvement while protecting traditional union bases of influence (such as seniority rights - in contrast to NUMMI). Workers at Lordstown called their teams "groups", to emphasize that this was not the Japanese or NUMMI team concept but rather a distinct and evolving

"homegrown" solution to the need for new work organization and engaged labor-management relations. And at Saturn, labor and management collaborated from the start in the conceptual and physical building of a new plant, to establish yet another, more thorough-going model of distinctly American work reorganization and labor-management partnership.

Diversity is even greater within the U.S. auto case when we consider Chrysler, Ford, and the Japanese transplants. At Chrysler, management has implemented "modern operating agreements", including team organization, at some plants but not at others (depending in part on workforce/union resistance). Ford had the best production results of the Big Three in the mid-to-late 1980s, but moved slowly in the introduction of teams (wisely seeking to avoid the problems associated with GM's often rushed implementation). And the Japanese transplants, except for the joint ventures, have stayed non-union and have implemented team organization throughout their plants, with positive results for productivity and product quality (Florida and Kenney 1991).

In the U.S. auto industry, therefore, the most obvious fact concerning new work organization is the great diversity of plant-level outcomes. In spite of widespread initiatives on the part of management and a general willingness on the part of the national union and many local unions to cooperate, the overall picture for the Big Three is of a very rocky transition that has yet to yield consistently successful results. Traditional ways die hard, and innovation failure has probably been more widespread than innovation success. Milkman (1991) argues persuasively that the failure to move decisively toward a "new social contract" that would include appropriate work organization is rooted above all in management's bureaucratic inertia. U.S. auto industry management has on the whole failed to reform itself adequately for the tasks at hand, while the UAW, still a strong union but within a seriously declining labor movement, has so far shown a limited capacity to develop its own concepts and push management toward successful work reorganization.

Of the three country cases we consider, however, the U.S. has moved the farthest toward Toyota-style lean production.

The Coming of Group Work in the German Auto Industry

In comparison to the U.S. case, the coming of new work organization, including the current move toward Gruppenarbeit (group work), has been slow, smooth and fairly regularized throughout the German auto industry. In response to economic recession, intensified competition and the export challenge of Japanese firms, German managers since the 1970s have moved to rationalize production. In so doing, they have introduced new technology and work organization that has included speed-up and deskilling for some production workers as well as "new production concepts" for others (Jürgens, Malsch, and Dohse 1989). The latter is especially associated with advanced technology and in many cases has meant a reintegration of tasks and a shift away from assembly-line fragmentation to more conceptual work such as machine monitoring (Kern and Schumann 1984; 1987).

At the same time, building on the union/SPD campaign for the "humanization of work" in the 1970s, the German metalworkers union (IG Metall) since the early 1980s has developed and actively negotiated for its own concepts of group work (Muster 1988; Roth and Kohl 1988; Turner 1991, pp. 111-17). In the auto industry, this union campaign accelerated after 1985 and has laid the basis for labor-management negotiation and the contemporary spread of group work at major assembly plants. In contrast to both the U.S. and Swedish cases, workers' interest representation (IG Metall and works councils) in the German auto industry has played a leading role in designing group work concepts and promoting their implementation.

The core ideas of union-promoted group work were developed at IG Metall headquarters in Frankfurt in the early-to-mid 1980s. Building on past

research and experiments from the humanization campaign, union representatives and researchers developed group work concepts in response to works council, local union and member complaints about the effects on the workforce of management's rationalization drive. In a back-and-forth dialogue between union and works councils of the major auto assembly plants, union thinking crystallized around 1986-87 in the following 12 principles of group work: (1) a broad assignment of varying tasks for the group (including long cycle times); (2) group competence and authority in decision making in such areas as job rotation, division of work, quality control, and training needs; (3) decentralization of the plant decision-making structure; (4) selection of production organization and technology suitable for group work (based on decentralized technology and production concepts); (5) equal pay for group members; (6) equal opportunity for all, including special training where necessary for the disabled and the socially disadvantaged, to participate in group work ("group work as solidaristic work organization"); (7) support for the personal and occupational development of individuals and the group; (8) regular group meetings, at least one hour per week; (9) representation of group interests within the established plant system of interest representation; (10) voluntary participation in the groups; (11) pilot projects to test the functioning of group work before broader implementation; and (12) a joint steering committee at the firm level, with equal labor and management representation, to oversee and coordinate the implementation of group work and the activities of the groups.

IG Metall argued that group work could serve management interests in cutting costs and raising productivity while at the same time raising skill levels and making work more interesting and "human". High skill levels in the German workforce, promoted by an extensive, national vocational education system already in place, would make possible the widespread introduction of skilled group work. By 1987, works councils at most of the West German auto assembly plants had adopted statements of policy endorsing group work, based on the twelve principles or something similar, and had entered into negotiations with management to establish pilot projects and prepare for broader implementation. Management, for the most part, disregarded works council suggestions on group work until around 1986, when NUMMI and other examples (such as the Austrian GM plant at Aspern) began to drive home the potential contribution of shopfloor teamwork. In a reverse situation to the U.S. case, managers just beginning to develop their own thinking found union group work concepts already on the bargaining table. As negotiations proceeded and pilot projects spread in the late 1980s, the actual shape of new group or team organization emerged from processes of compromise between the union's maximal position and developing employer notions (favoring a more NUMMI-style approach with, for example, less autonomy for the groups).

At VW, for example, substantial pilot projects were established at the Emden and Salzgitter plants as well as at the VW subsidiary Audi. In 1988, the VW general works council at Wolfsburg endorsed group work as its vision of future work organization in the auto industry, a vision addressing both production needs (flexibility, productivity, a highly skilled workforce) and a union-backed democratic workplace culture (Riffel and Muster 1989). In 1989, negotiations with management began in earnest for the establishment of new pilot projects and the gradual spread of group work throughout the VW plants. Both works council and management faced problems in this effort, both in their relations with each other (and their contending, if in some ways overlapping, viewpoints) and in their attempts, especially by the works council, to elicit shopfloor support.

But management, union and works council are all strong and well organized at VW. One can predict (and already see the outlines of) lengthy processes of negotiation accompanied by fairly smooth and gradual

implementation of group work at the VW plants. The works council won't get all that it is asking for in the design of new work organization. But it does speak with a consistent and proactive voice, backed by formal rights (in the Works Constitution Act) to information, consultation and participation in management decision making. The works council will get some of what it seeks, including the preservation of its own important position at VW, and the path will be cleared for implementation. Group work, we predict, will be quite different at VW from teamwork at NUMMI or the other American plants considered above, and will include more "human-centered" features such as longer cycle time and more group autonomy. One can see the outlines of such innovative work organization emerging at the new VW plant at Mosel in the eastern state of Saxony (Jürgens, Klinzing, and Turner 1991, pp. 23-29).

Similar processes are underway at Ford and Opel in Germany. At Ford, for example, the works council countered management plans to strip labor from a new advanced technology installation (in the tool-and-die plant) with its own proposal for group work. After hard bargaining, management accepted the plan in 1987 and set up a group work experiment that became a model for the integration of computer room programming and shopfloor machine monitoring. And at Opel, the first German auto industry agreement for the firm-wide implementation of group work was signed in early 1991 between management and the general works council. Building on pilot projects that included 1,700 Opel workers, labor and management agreed to full implementation of group work by 1993 in all Opel plants. The design of the groups is based to a significant degree on IG Metall concepts, including 8-15 members at varying skill levels, considerable group autonomy in job design and the organization of assigned work, a major commitment to training within the groups, pay raises for all (three per cent on the average along with this agreement), elected group leaders, and group meetings for one hour per week. Opel management expects that the added costs of group work will be more than offset by the gains in productivity. And Mercedes Benz announced the implementation of negotiated group work for 10,000 workers in 1992, to expand to include half the workforce by 1995.

In contrast to the U.S. case, processes and outcomes for group work appear fairly regularized throughout the German auto industry. The relatively narrow range of outcomes results above all from the IG Metall's coordinating role in the development and promotion of group work concepts and bargaining strategies. The works councils at most German auto assembly plants adopted the concepts and put them on the bargaining table around the same time. And everywhere in the auto industry, management is restricted in what it can do unilaterally given substantial works council codetermination rights. We can expect that the 1991 agreement at Opel will be followed by similar agreements at VW and Ford, and that group work in the German auto industry will continue to be implemented in comparatively smooth processes based on negotiated labor-management agreement.

A Long History of Group Work in the Swedish Auto Industry

As in Germany and the U.S., the current Swedish experience with work reorganization has a history that stretches back two decades or more. Until the 1970s, Swedish industrial relations were based largely on a broad agreement between the social partners; with the Saltsjöbaden agreement of 1938, unions and employers each recognized the other's legitimacy and agreed to strive for the peaceful settlement of industrial conflicts, with employers retaining the exclusive right to organize production at the workplace. Wage bargaining occurred at the central level, while a "hands-off" approach for government in industrial relations prevailed. The first attempts at fundamental work reorganization came from certain managers who adopted "social-technical

system analysis" ideas in order to reduce high turnover and absenteeism rates.

Organized labor, however, considered the early management approach too individualistic, preferring a more collective concept of industrial democracy. During the 1970s, unions thus engaged in a broad "legal offensive" which left Swedish industrial relations more extensively regulated by the early 1980s. Included in the new legislation was the law on codetermination, passed in 1976, which established union rights to information, consultation and participation in management decision making at the plant and firm levels. A central-level collective bargaining agreement in 1982, between LO (the blue-collar federation), TCO (white-collar) and SAF (the employers' association), established a framework for the implementation of codetermination, which was then supplemented by specific union-employer agreements such as the one at Volvo in 1984.

The union legal campaign brought the movement for new work organization to a slowdown by the late 1970s. Although the experiences of that first period did not spread, some of them, such as innovations at the Volvo Kalmar plant beginning in 1974, nonetheless set the pace for further developments.

After a period of turmoil in industrial relations, brought on in part by the union legal offensive and the campaign for wage earner funds (interpreted by many as the end of the "Swedish model" of peaceful bargaining for structural change; Auer 1983), a new period of work reorganization began around the mid-1980s.

The new drive for changes in work organization was again initiated by management. This time, however, the changes were founded less on humanization-of-work than on efficiency concerns, aimed at reforming a bureaucratic, centrally controlled organization. Although changes were now legitimized on efficiency grounds, they were not opposed by the unions. Labor's new approach was based in large part on the success of the legal offensive and the new union rights to full information and consultation on all shopfloor matters. The metalworkers' union (including the auto workers) began to develop labor strategies for organizational change, which by the mid-1980s led to proposals for "good work" which included group-work (Metalarbetareförbundet 1985). Union group work concepts paralleled the basic group work plans already developed by management, which had continued to discuss and implement changes even during the period of the legal offensive. Work groups were designed to execute regular production work in reorganized plants, based on ideas of product shops, flow groups and the general notion that "small is surveyable" (Agurén and Edgren 1980). Such planning aimed at creating highly integrated teams of production workers engaged in job rotation, enlargement and enrichment. Production groups of the Swedish kind, in addition to direct production work, take on extensive tasks such as maintenance of equipment and tools, material planning, "housekeeping" of the group area, distributing work assignments among the group members, and vacation planning. Usually a group leader is elected, and leadership can rotate among group members. Wage incentives (pay for knowledge of tasks within the group and performance pay based on group or plant performance) as well as flatter hierarchies accompany the new forms of work organization.

A study conducted at ten plants of the Swedish car producer Volvo (Auer and Riegler 1990), as well as other research (Berggren 1991), shows the diversity of group work forms. At the new plant in Uddevalla, highly integrated teams each assembled a whole car; in other plants, however, a team may only be a group of workers executing specialized tasks under the control of a foreman selected by management. But in most plants there is a constant effort to push group work concepts further.

Plant-level diversity in the Swedish auto industry is even greater if one takes into account the changes in work organization at the second Swedish

car manufacturer, Saab. Although group work was introduced there as well, Saab never developed a broad strategy to diffuse the innovations as Volvo did. Some of the changes (as in engine production at Södertälje) have been discontinued; and the new assembly plant in Malmö never represented as clear a departure from the assembly line as Volvo's Uddevalla plant, built around the same time (Berggren 1991). When GM took over Saab in 1990, management decided to close the new Malmö factory, believing both that capacity at the principal Saab site in Trollhättan was sufficient for the future and that car assembly in the new plant was too costly.
Different companies, but also different plants within a company (which are usually run on a profit center basis and therefore have considerable autonomy concerning issues such as work organization) exhibit considerable diversity of implementation in forms of group work. It is astonishing, for example, that Womack, Jones, and Roos (1990, pp. 101-2) put on the same level of "neocraftmanship" two very different Volvo plants, Uddevalla and Kalmar, when the latter is much closer to "lean production" than the former.
Although at Kalmar a new assembly technique (carriers on magnetic tracks) was developed and the plant was divided into small workshops (group areas of 15-20 workers each), the factory did not represent a radical departure from the assembly-line principle. The carriers' pace was centrally set; and earlier possibilities of variation afforded by buffers and dock assembly (working at stationary platforms) were restricted by new requirements such as just-in-time parts delivery.
Uddevalla, by contrast, started production fifteen years after Kalmar and afforded a radical departure from the assembly line. The entire car was assembled on a stationary platform by a work group of around ten members; without centrally controlled pacing, there was more autonomy for the groups and more scope to vary production speeds. For the first time, assembly work, typically low-skilled in auto assembly plants, was upgraded: workers had to complete sixteen months of training before becoming full-fledged assembly workers at Uddevalla.
A close look at work organization in the Swedish auto industry thus shows very different forms even at plants considered innovative within the same firm. The form of implementation appears to depend on a variety of factors such as available skills in local labor markets. Restrictions or incentives for implementation, for example, are set by the availability of both skilled labor and alternative jobs in the area, with important effects on turnover rates.
In comparison to the other countries in our study, the following national pattern of work reorganization in Sweden emerges. Changes are mainly management driven, with extensive diffusion channels (through the strong employer federation) to spread information and facilitate broader implementation of change. Management sees working groups as one element of a larger strategy of organizational change, to delegate responsibility for profits, costs and "total quality" as far down as the shopfloor level.
The attitude of Swedish unions has changed over time from resistance to support for change, in part because codetermination rights were enacted in law. The metalworkers union in particular has in recent years developed proactive policies for work reorganization. Given high Swedish rates of unionization (90% or more) and broad union influence in the political economy, union work organization strategies provide an effective channel for the diffusion of group work. The union goal is the realization of principles of "good work", combining stable, well paid jobs with challenging, skills-developing assignments.
Although goals are not the same on both sides, there is enough overlap between the designs of labor and management for a "modernization agreement" to have taken hold. A cooperative way of implementing change

has developed which has contributed to the diffusion of experiences and new forms.

Volvo's decision to close Uddevalla in 1993 and Kalmar in 1994 cuts the ground from under proponents of Swedish-style group work. But according to Volvo management, the decisions to close resulted not from weak performance but from overcapacity. It makes sense to close small final assembly plants (lacking body and paint shops and stamping plants) and consolidate production at the larger Torslanda plant and the Skövde engine plant, where group work innovations will continue. Just as we have seen the influence of industrial relations in the development of Swedish work organization, so industrial relations also played a role in recent decisions. The union understood the overcapacity problem and preferred closing the smaller plants to cuts in the large union stronghold at Torslanda. Managers and unionists alike are emphatic that the remaining plants will survive and thrive with variations of Swedish group work rather than lean production.

Conclusion

The overall picture that emerges from these national stories, based on empirical studies of the politics of new work organization at numerous auto plants, is one of rich diversity. The isolated work stations of traditional mass production are giving way everywhere to new forms of team or group-based work organization. But the politics and processes of change as well as the specific shape of the outcomes vary considerably within and across both nations and firms. Although plant-level variation is important within each national case, there do appear to be distinct national patterns for the processes and outcomes of contemporary work reorganization.

In the U.S., we see the broadest diversity of plant-level outcomes. The drive toward team forms of organization is management led, inspired by a Japanese "team concept"; but management has often pushed its programs on reluctant and divided workforces and above all has failed to adequately reform itself, to play a less authoritarian, more cooperative, facilitative and inspirational role. The official union response has been to collaborate with management on new work organization, although at the plant level local union responses range from collaboration to opposition. The union has played only a minimal proactive role of its own, one that would promote an independent vision of the shape of new work organization. The overall pattern has been one that includes both widespread failure to reorganize successfully, especially at the dominant firm, GM, and a rocky transition toward Japanese-style team organization. The U.S. case provides evidence for the second hypothesis: that arm's-length labor-management relations result in employer dominance of work reorganization and a very rocky transition toward variations of lean production.

In Germany, progress toward group work in the auto industry has been slower and more deliberate. Here, the union has played a strong proactive role in developing and promoting its own concepts of new work organization. There has been a relatively narrow range of plant-level outcomes, marked by group work negotiations and pilot project implementation, although labor and management at Opel have signed a breakthrough agreement that calls for broad group work implementation. As employers have become more interested in team forms of organization since the mid-1980s, labor (through the works councils) and management have been negotiating the substance of group work, including some elements that could be considered "lean" and others that come from the union's "humanization" orientation. The German case provides evidence for the first and the fourth hypothesis: that institutions of codetermination facilitate proactive union strategies which result in negotiated work reorganization; and that extensive vocational training promotes human-centered work organization.

In Sweden, the overall move toward group work began early, in the 1970s, and has progressed through a variety of forms at various plants. The drive toward new work organization has for the most part been management led, as part of a drive to attract workers and reduce absenteeism and turnover in a full employment economy. Backed by new codetermination legislation and bargaining agreements, the union in recent years has moved toward its own engaged, proactive stance on group work, and has tipped the balance within management toward more autonomous, "human-centered" forms of organization that are quite different from Japanese team concepts. There is in effect a "modernization agreement" between labor and management to promote both the introduction of advanced technology and new forms of group work designed to be both human-centered and efficient. The Swedish case therefore provides evidence for the first, the third and the fourth hypothesis: that institutions of codetermination facilitate proactive union strategies which result in negotiated work reorganization; and that tight labor markets and extensive vocational training promote human-centered work organization.
Our hypotheses on work reorganization are not intended to be exhaustive but rather to illustrate the importance of industrial relations and labor market circumstances for variations in new work organization. Although the evidence is richly suggestive, we have not proven these hypotheses, which require further testing in other industries and industrial societies coping with the challenges of work reorganization. If valid, these claims should be widely applicable in Western Europe and North America, and not just in the automobile industry.
The Japanese case, by contrast, is unique as an important driving force for change in other countries. Although analysis of work organization in Japan is beyond the scope of this article, it is nonetheless clear that firms such as Toyota display great strengths in productivity and product quality. But Toyota is not the only Japanese way; there is considerable diversity within Japan, even within the auto industry (between, for example, Toyota and Honda). In addition, there is mounting evidence that contemporary work organization in Japan is changing; several analysts have claimed that on the shopfloor, the lean model even at Toyota is beginning to loosen up in response to the demands of Japanese workers and the need to make factory work more attractive to young workforce entrants (Nomura 1992).| And Japanese work organization in all its varieties is very much a product of its own institutional, historical and labor market context. Enterprise unions grease the wheels of cooperative labor-management relations and team-based work organization; and enterprise unionism itself is based in part on past union demands such as employment security and seniority-based rewards (Kenney and Florida 1988, pp.127-29).
In their seminal study of lean production, Womack, Jones, and Roos mention in passing that there may be many aspects of Japanese society that others will not want or need to adopt (1990, p. 9). One of these, which they do not mention and about which they say almost nothing in their book, may be Japanese industrial relations, in which the subordinate enterprise union functions in many cases as a virtual arm of management. This is in fact the biggest mistake that Womack, Jones, and Roos make: the failure to acknowledge that the Toyota production system which they laud was founded in part on the defeat of independent unionism in the 1950s, and that industrial relations is always an important part of the development of new work organization.| And other important factors influencing work organization are beyond the decision range of individual firms: labor laws, for example, that allow generous leaves of absence or reduce working time, making it necessary to put additional personnel on the books; and tenure and mobility patterns, which may result in high turnover rates and in any case leave their mark on productivity and cost.

It is precisely for reasons such as these that production organization will continue to look different in different national and local settings. Although it is true that extraordinarily efficient Japanese production models are driving much change in work organization practices in other countries, it is wrong to judge others by how closely they approximate the ideal type of lean production. Because political, economic and social contexts matter so importantly, there will be enduring and substantial cross-national and sub-national variations in new work organization, as the evidence presented here on team and group work makes apparent. And there is no more apparent reason now than there has been in the past to assume that there is "one best way", that one way will in the long run necessarily prove far superior in productivity, product quality and worker satisfaction. Even at its high point of worldwide diffusion, Fordism had widely varying local forms of implementation, as comparative studies of factory organization have made apparent (Lutz 1977; Maurice, Sellier, and Sylvestre 1986). And in an interesting counterpoint to the image of inexorably spreading lean production, Ruth Milkman has shown that even most Japanese producers in the U.S. continue to use traditional methods and have chosen not to make use of innovative NUMMI-style ways of organizing their workforces (Milkman 1992).

If it is true, as we argue, that there is not necessarily one best way, alternative models must nonetheless successfully compete. In this essay, we have juxtaposed Toyota's lean production, which we believe includes human downsides such as intensive work pace, high stress, long hours, short cycle times, limited worker independence and an absence of truly independent employee representation, against more human-centered German and Swedish group work. But while Toyotism has emphatically proven itself in competitive terms, the same is not yet true for German or Swedish group work. We think it is too soon to evaluate the latter nascent efforts and other current attempts at synthesis; but we do acknowledge, as do the relevant practitioners from both management and labor, that Japanese levels of productivity must be approached if German or Swedish group work is to succeed.

In this regard, the building of a new VW plant at Mosel (Saxony) in eastern Germany is an important case. Here, VW management aims to match Japanese levels of productivity by combining elements of lean production with union group work concepts, the terms of which are negotiated and overseen by an elected, union-dominated works council (Jürgens, Klinzing, and Turner 1991, pp.23-29). Managers and unionists alike are excited about the development of innovations that could be spread throughout Germany.

The important point here is that while elements of lean production are arriving in Germany (and many other countries as well), new work organization looks different in many ways from Toyotism, especially in the emphasis on human-centered design. Elements of new work organization -- JIT, job rotation, skills training, elected group leaders, decision-making capacities -- can in fact be developed and combined in different ways, resulting in more or less individual and group autonomy.

Convergence theories were dominant in the social sciences in the 1950s and 1960s, spearheaded as they were by the "industrialism" perspective of Kerr, Dunlop, Harbison, and Myers (1960). These theories captured part of the truth: that industrialized societies contain many common economic, political, social and organizational aspects. But the predictive power and credibility of these theories were soon swamped by persistently distinct structures of political economy, even within the ranks of the advanced industrial democracies (Dore 1973; Schmitter 1974; Wilensky 1976; Zysman 1983). Even the dominant mass production paradigm for industrial organization always contained within it important cross-national (and other) variations, which became increasingly important with new markets and technologies since the 1970s (Piore and Sabel 1984).

Now, with the collapse of the communist regimes of Eastern Europe, economic integration in Western Europe, and the contemporary dominance of free-market ideology, new convergence theory becomes tempting. But entrenched national institutions and particular market circumstances make national and local diversity as important now as ever. This is especially true for production organization, in spite of the obvious success of lean production and the current widespread interest of Western managers in Japanese forms of organization. Firms, it is true, that cannot respond to Japanese levels of productivity, quality and flexibility will decline or die out altogether. Nonetheless, the evidence presented here indicates that although Japanese practices such as the team concept are widely promoted by employers in North America and Europe, the specific shape of new work organization will be significantly determined by national and local institutions, circumstances and negotiations.

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| We are not arguing that organizational transfer is impossible. NUMMI and other Japanese transplants have shown that transfer is indeed possible, especially when Japanese management is part of the transfer (Florida and Kennedy 1991). As a general rule, however, we argue that national and local contexts will shape distinctive national and local patterns.

| Successful Japanese transplants in the U.S. make it clear that labor markets with abundant skills are not necessary for the success of Toyotism/lean production.

| Although our case studies are of the auto industry, the hypotheses are of a general nature and should apply across a range of industries. We look here at the auto industry as one important test of our claims.

| Case study research on NUMMI and the other U.S. auto plants mentioned below is based on intensive interviews conducted at each plant between 1987 and 1989 (see also Turner 1991, pp. 31-90).

| For more on the introduction of teams at Van Nuys, see Mann 1987, pp. 219ff. and Turner 1991, pp. 62-70. For a comparison od NUMMI and Van Nuys, see Brown and Reich 1989.

| In contrast to both the U.S. and Sweden, Germany has a dual system composed on the one hand of 16 major industrial unions, engaged in regional bargaining with centralized employer associations, and on the other hand a separate structure of legally mandated works councils, with information, consultation, and codetermination rights in the workplace. Although works councils are elected by the entire workforce, blue and white collar, at each workplace and have no formal relationship to unions, most works councilors are union members. The tight linkage between union and works council is especially pronounced in the auto industry.

| Based on a summary translation of Muster and Wannöffel 1989, pp. 39-54. See also Turner 1991, pp. 113-114. For an updated version and general discussion, see Hans-Böckler-Stiftung/IG Metall 1992.

| Case study presentations of VW, Ford and Opel in Germany are based largely on interviews conducted at the plants in 1989-89. For more detail, see Turner 1991, pp. 117-148.

| For more detail on the specific nature of these rights, see Turner 1991, pp. 98-99.

| Negotiations for group work at Wolfsburg have recently taken a back seat to other issues (such as employment security, VW investment in eastern Germany and Czeckoslovakia, and the building of a cross-national Euro-works council at VW). Wolfsburg works councillors, nonetheless, are working closely with and watching carefully the more advanced efforts to build plant-wide group work both at VW-Salzgitter and at Mosel.

| European Industrial Relations Review 210, July 1991, pp. 11-12; Betriebsvereinbarung Nr. 179: "Gruppenarbeit", Adam Opel AG and the Opel General Works Council, Rüsselsheim.

| Economic recession and the continuing crisis of German unification, however, may well speed up processes of work reorganization. Just as VW looks at Mosel, so Opel looks at its innovative lean plant at Eisenach for clues about how to promote reform.

| The material in this section is based on intensive interviews and other research at Swedish auto plants since the mid-1980s. For more detail, see Auer and Riegler 1990a and 1990b.

| These ideas were developed by experts at the Tavistock Institute in Britain (Trist and Bamforth) and then elaborated by Scandinavian researchers such as Thorsrud (1972). Until the 1970s, Swedish industrial relations were based largely on the Saltsjöbaden agreement of 1938, in which employers and unions agreed to strive for the peaceful settlement of industrial conflicts and employers retained the exclusive right to organize production at the workplace. There was no German-style dual system and no codetermination until the 1970s.

| For more on Kalmar and Uddevalla, see Auer and Riegler 1990a and 1990b.

| And at the new Honda plant in Tochigi, Siegfried Roth reports, a production system was introduced which for the first time did not include an assembly line and which was strongly influenced by the skilled worker orientation found in Germany and Scandinavia (Roth 1992, p. 19).

| Womack, Jones, and Roos present detailed discussions of the relations and tensions between firms and suppliers and between firms and dealers, but unaccountably omit any substantive discussion of the relations and tensions between firms and their own employees and unions. This omission is all the more glering because the predecessor to this book, the first volume produced by the MIT International Motor Vehicle Program which they co-authored (Altshuler et al 1984), was quite explicit in according a primary importance to contrasting cross-national industrial relations.

| A more useful conceptualization would be a continuum between the two, and the ideal version would probably contain a synthesis of lean and human elements.